

PHILADELPHIA MEDICAL TIMES.

SATURDAY, AUGUST 30, 1873.

ORIGINAL LECTURES.

CLINICAL LECTURE

ON A CASE OF TRAUMATIC MÉNIÈRE'S DISEASE.

Delivered at the University of Pennsylvania,

BY DR. H. C. WOOD, JR.

GENTLEMEN,—The man before us to-day presents himself partly for treatment, but more especially for an opinion as to whether there is or is not a pistol-ball within his cranium. The history which he gives of himself is as follows. Three months ago, whilst sitting talking with a friend, he was wounded by a pistol accidentally discharged in the hands of the latter. So near was he to the muzzle of the weapon that, as you can yet see, his face was covered with the grains of powder, many of them being driven into the skin. The direction of the ball was believed to be horizontal or a little downwards, and you can readily perceive, just above the left corner of the mouth, the scar of its entrance. He did not become at once unconscious, but for the twelve hours after the accident was, so far as I can judge from his description, in a semi-unconscious condition. The symptoms from the local injury were severe; inability to talk or to eat anything except liquids, with great swelling and soreness about the mouth, persisted for about two weeks, and with such intensity as to overshadow all other symptoms. It is important to mention that at the time of injury there was slight but persistent hemorrhage from the right ear, and that shortly afterwards he noticed that he was deaf on the same side.

Two or three weeks after the reception of his injury, he was sufficiently recovered to sit up in bed and to attempt to shave himself. It was then that he first noticed an inability to make the finer movements with the right arm, and also a decided loss of power in executing the coarser ones. He was entirely unable to shave himself, and has been so ever since. On attempting to walk, he found that his right leg was very decidedly weaker than its fellow.

The present condition of the man may be summed up as follows: Complete deafness of the right side, as shown by holding a watch against the ear; speech somewhat thick and staggering; pupils alike on both sides, and normal; optic disk normal; no headache; pains of the right arm and leg decided; the muscles flabby, but responding sluggishly to electricity.

Evidently the first point in the case to be determined is as to the position of the ball, whether it is or is not inside the skull.

As incomplete hemiplegia exists, you might at first glance be tempted to believe that the brain-substance had been wounded. Notice, however, that the paralysis is far from complete, and especially that it is upon the side of the injury. From the direction of the shot, it would seem impossible

that the ball could have crossed to the opposite side before entering the brain; and the occurrence of the bleeding from the right ear at the time of injury demonstrates that this did not happen. As decussation of the motor fibres of the brain takes place first in the medulla oblongata, it is evident that no pistol-ball could produce a brain-wound which should in its turn induce a paralysis of the same side of the body without causing more serious symptoms than have existed in the present case. A gunshot wound of the medulla is necessarily fatal. It seems to me to follow from these considerations that the loss of power in the arm and leg of this man is not due to an injury of the brain-substance. The absence of headache, with the perfectly normal condition of the optic disk, appears to me inconsistent with the idea of meningitis; and I am forced to conclude that the paralysis is not of central origin, and that the ball did not find its way into the cranial cavity. Further, it would appear most probable that the missile is imbedded in or lies near to the petrous portion of the temporal bone, since the almost complete deafness and the persistent bleeding from the ear at the time of injury showed that the bone alluded to was fractured.

No doubt many of you are now inquiring within yourselves how the loss of power of the muscles of this man is to be accounted for if the nerve-centres were not affected, and what fracture of the petrous process has to do with the paresis. My answer to the first inquiry is, Wait a moment; to the second, Much. As long ago as 1842, the great physiologist Flourens discovered that lesions of the semicircular canals in the lower animals are followed by disturbances of equilibrium and of motion, and that if the horizontal canals be wounded rotary movements *towards the injured side* occur when the animal attempts to walk.

One of the chief complaints of our patient is, that he staggers; that at times in walking the streets his gait has been so uncertain that his acquaintances have thought that he was drunk. This staggering, he states, is much worse at night than in the daytime,—in the dark than in the light. You see now when he walks with his eyes open he is quite steady; but watch him as he attempts to walk around the amphitheatre with his eyes bandaged, and see how he staggers. Notice, if you please, that the staggering is towards the affected side. The patient asserts that it is always so. As injury to the internal ear will in animals produce very marked disturbances of motility, similar in character to those which are present in the case before you, and as in the patient the history shows that the inner ear was injured, it appears to be a fair logical inference that his symptoms are due to the aural injury. This diagnosis, however, does not rest simply upon experimental physiology for its basis, but has also clinical support.

In 1861, Dr. Paul Ménière described an affection which has since been noted by various observers, and is known by the name of its discoverer. In this disease the patient suddenly falls, unconscious, as if in apoplexy, and, on recovering consciousness a

few moments afterwards, discovers that he is totally deaf in one ear; or else this sudden deafness is preceded simply by an intense vertigo, and not by a complete apoplectiform attack. With this deafness there is almost always tinnitus aurium, or ringing in the ears, which is more or less permanent, and is accompanied by disturbances of equilibrium and staggering, or rotatory movements, towards the affected side.

For an elaborate discussion of the subject, I must refer you to Dr. H. Knapp's paper in the second volume of the *Archives of Ophthalmology and Otolaryngology*. It is enough for our purpose to know that the symptoms of this affection have their origin in an apoplexy of the internal ear, in all probability of the semicircular canals. In the same volume of the *Archives*, Dr. G. Brunner, of Zurich, details a case which demonstrates very strongly the relation between apoplectiform symptoms and disturbances of the pressure upon the nervous expansion of the inner ear. Into the inner ear of a lad fourteen years old he suddenly and violently forced air, with the result of producing intense vertigo and temporary hemiplegia, which Dr. Brunner believes to have been upon the same side as the ear acted upon, although, writing from memory, he is not certain as to this.

With a knowledge of these facts, I think you all will agree with me in diagnosing that all the cerebral symptoms in the case before us had their origin in a fracture running through the inner ear, and in prognosing that, as the local disturbances caused by this subside, the power will return to the arm and leg. With the idea of hastening the removal of any exudation which may exist, I will give the man small doses of Donovan's solution, and will see that the health of the affected muscles is restored by faradization, kneading, and the other usual local measures.

[Under this treatment the man recovered the full use of the affected limbs, and ceased almost entirely to stagger in about six weeks. The hearing improved slightly.]

ORIGINAL COMMUNICATIONS.

A CASE OF UNSUSPECTED PUNCTURED WOUND OF THE BRAIN-SUBSTANCE WITH SUPPURATIVE ENCEPHALITIS.

BY W. H. PARISH, M.D.,

Late Resident Physician to the Philadelphia Hospital.

THOMAS B., æt. 64 years, was discharged from the drunkards' ward of the Philadelphia Hospital on September 24, 1871, and on the 2d of the following month was again received into that ward; it now being his twelfth admission to the house. Shortly after his admission he was seen by one of the physicians, who, not considering him sufficiently under alcoholic influence to render it necessary that he should be kept in that ward, and observing a small wound of the temple, had him transferred to the surgical ward. There, on the 3d he stated to the interne that there was nothing the matter with him, and that he wanted to be sent to the out-wards. The interne, finding him walking around,

perfectly rational, free from any suffering, with only an apparently very slight integumental wound, and asking to be transferred, had him sent from the crowded surgical wards to the out-wards. There the officer in charge placed him among those capable of doing light work, so entirely well did he appear.

The man made no complaint until the afternoon of the 5th, when he took to his bed, saying that his head ached and that it was hard for him to breathe.

About 10 o'clock of that night the physician of that apartment was sent for. The patient was then in a very delirious state, and gave no answer to any question. Early on the following morning he was again taken to the drunkards' ward.

On the 6th, about 9 A.M., he was seen by Dr. Eshelman, and, at the latter's request, by myself, for the first time.

The patient was then motionless and speechless. The respirations were slow and stertorous, with puffing of the cheeks on expiration. The pupils were fixed, the left contracted, the right about normal in size. There were some oscillations of the eyeballs. Touching the conjunctiva produced no muscular action of the lids. The pulse at the wrist was slow and full. The bladder, being distended, was emptied by catheterization. We then observed a small wound of the right temple, it being partly concealed by hair matted with pus; but, owing to the obviously moribund condition of the man, it was not further examined. An enema unloaded the rectum. Some milk-punch was given, deglutition being accomplished, but with difficulty.

The state of complete coma continued, without convulsions, until 11 P.M., when death occurred. At no time prior to the coma was there complete paralysis of any muscle.

Fifteen hours after death, in the absence of Dr. Eshelman, I made the autopsy. There were no bruises or other marks of injury on the person, excepting the small wound of the right temple. This was about half an inch in length and situated about one inch in front of the tragus. The cranial cavity was first examined. Passing through the squamous portion of the right temporal bone, immediately above the zygomatic arch, was found the small blade of a pocket-knife, it entering the middle cerebral lobe and being directed transversely and somewhat posteriorly. The blade measured about two inches, and its shoulder was in contact with the external plate of the bone. The blade had not been broken, but wrenched from the rivet. The portion external to the cranium was completely concealed by the integument. There were no evidences of hemorrhage within the cranial cavity. The base of the brain was covered with a thick purulent fluid. The meninges of the vertex presented no signs of inflammation.

On the 9th the body was seen by the coroner's physician. I then continued the examination of the brain. The knife had entered the middle lobe from the side, piercing apparently through to the middle cornu of the lateral ventricle. Around the blade the brain-tissue had broken down, leaving the cavity of an abscess. The tissue around was softened, and presented the diffused pinkish appearance of encephalitis with œdema. The microscope exhibited numerous granular fat-cells—the "globules of Gluge"—throughout the inflamed cerebral substance, this being apparently quite limited to the middle lobe. The two lateral, third, and fourth ventricles contained a few ounces of a turbid purulent fluid. At no point was there to be found lymph undergoing organization.

A triangular portion of the calvaria, including the knife-blade, firmly impacted, was sawn out. The bones were of about the usual thickness. There was no depression of the internal plate, and no lines of fracture radiating from the point of puncture.

Remarks.—On the day of the man's admission to the hospital it was noticed that the wound of the temple was in a state of suppuration, and consequently must have been produced several days previously. Most probably, then, the blade had remained imbedded in the brain-substance for six or more days prior to his death, or even to the first manifestations of cerebral derangement. The wound having been inflicted while the man was in a state of debauch, no evidence as to the mode of its production could be obtained. It is common to meet with slight contusions or other wounds on those subject to debauchery, which under mere hygienic hospital regulations get well of themselves. In this instance, prior to the evening preceding his death, there were no symptoms to awaken even a suspicion that this would prove an exceptional case.

The patient continued to walk around, rational, yet not aware that there was anything wrong with his head. When the suppurative encephalitis became so extensive as to involve the basilar meninges, producing irritation and, from the accompanying exudation, compression of the nerve-roots, pain, severe and intense in its character, became the earliest and one of the most important symptoms. As the roots of the pneumogastrics became implicated, difficulty of respiration presented itself. Soon the manifestations of active psychical derangement evinced that the entire encephalic mass was sympathizing with the intensity of the inflammatory action, though this was confined to a limited portion of this nervous centre. As the exudative material now rapidly accumulated, and the congestion with œdema of other portions of the brain became more marked, complete coma from compression supervened.

The symptoms on the 6th were very similar to those of apoplexy, but the unsymmetrical condition of the pupils pointed rather to a laceration of the brain-tissue with compression, than to simple compression alone. In laceration without compression the pupils are usually contracted; as compression complicates the case, we generally find one contracted, the other dilated. Suppurative encephalitis is usually due to traumatism. It also arises from disease of a cranial bone, or may have its origin in a necrosed spot, or may show itself in pyæmia, typhus, or other low diseases, or it may be idiopathic. It is much more common in adults than in children, being the reverse of meningitis in this respect. It never involves all the cerebral mass, the inflammation being confined to one or more localized spots, unless there is such an affection as *cerebria*,—the existence of which does not seem to be satisfactorily established.

Among the symptoms frequently present, though apparently not in this case, are twitchings, rigidity or paralysis of isolated muscles, and general convulsions.

Treatment may at times prevent suppuration, but to effect this it must be strictly antiphlogistic. After the formation of pus, or after the actual softening of a portion of the brain-tissue, treatment is of almost no avail. It is said that in some few exceptional cases an exudative material has encapsulated

the softened mass, and that the latter has been in part gotten rid of by absorption, in part changed by calcification.

This case is one of considerable interest, but is by no means unique. Numerous cases are cited in the various surgical works. Sir Astley Cooper instances a case of a girl, through the orbital plate of whose frontal bone the blade of a pair of scissors was accidentally thrust, it entering the brain-substance. The blade was immediately withdrawn, and the girl continued to walk about for ten days, when encephalitis was established, and she quickly died.

Erichsen gives two cases of abscess of the brain following laceration of the pericranium. In the one case there appeared on the tenth day pain in the head, quick pulse, and a hot skin; and on the thirty-ninth day the man died comatose. In the other case there was coma on the ninety-ninth day, and on the third subsequent day death. In each case autopsy showed central abscess without injury of the bones.

From the same authority we also learn that Dr. Cunningham relates the case of a boy who lived twenty-four days with a pistol-breech lying on his tentorium and resting against the occiput; and that Dr. O'Callaghan relates that an officer lived seven years with the butt of a fowling-piece imbedded in his forehead, and in contact with the right hemisphere with the exception of an intervening adventitious membrane.

The most remarkable case of all, however, is the one reported by Prof. Bigelow in 1850. In that one an iron bar, three and a half feet in length by one inch and a quarter in diameter, passed through the anterior portion of the cranial cavity. In sixteen months there was complete recovery, save the loss of vision in the eye of the injured side.

There are at least three instances in which the surgeon has boldly incised the healthy brain-substance to reach a diagnosed cerebral abscess, and in every instance with the success of evacuating the contents and of improving the condition of the patient. These operators were Dupuytren, Delmot, and Prof. Pancoast.

The question naturally presents itself, Would the termination of the case that we have reported have been different had the nature of the injury been ascertained soon after its infliction and the foreign body been immediately removed?

A wound of the cerebral substance occurring in the aged and in those subject to a state of confirmed alcoholism, the chances against a favorable termination are much enhanced; and most probably the injury was an inevitably fatal one, even had circumstances permitted the most prompt and judicious treatment.

The subsequent coroner's investigation threw no light upon the production of this wound. The position of the injury, and the force which must have been used to accomplish it, would seem to indicate that its infliction was scarcely possible by the hands of the man himself, and it was, therefore, almost certainly done by some one else in a drunken brawl.

EYES OF DIFFERENT COLORS IN THE SAME INDIVIDUAL.

BY JOHN STOCKTON-HOUGH, M.D.

THE writer has recently seen quite a curious and perhaps very unusual phenomenon,—viz., eyes of different colors in the same animal. Two entirely white male cats, brothers, of the same pregnancy, were alike in every particular save one, and that was in the color of the eyes (irides). One cat had both eyes of a corn color; the other had the left eye corn-colored, and the right a very light blue in color. The effect of this difference in color was so striking as to attract my attention to them when I was passing the open doorway in which they were standing. I did not learn any particulars concerning the color of the father's eyes, but the mother had both eyes of the same color.

NOTES OF HOSPITAL PRACTICE.

PENNSYLVANIA HOSPITAL.

SERVICE OF DR. R. J. LEVIS.

Reported by JOHN B. ROBERTS.

RE-FRACTURE OF DEFORMED CALLUS IN A CASE OF BADLY-UNITED FRACTURE OF THE FEMUR.

DANIEL G., a sailor, aged 17 years, while on a voyage from Liverpool, fell from the mizzen-topsail yard, a distance of seventy feet, striking on the railing over the cabin. He sustained a fracture of the right femur, and a double fracture of both bones of the right forearm.

The mate of the vessel, acting as surgeon for the occasion, rudely bound splints to the broken limbs, but used no means for keeping up extension on the thigh. While at sea, the boy became delirious, and tore the splints and bandages from his leg, so that the fragments were not kept in apposition, and great deformity resulted. The upper fragment of the femur was tilted upwards and rotated outwards by the action of the psoas and iliac muscles; and union consequently took place with the bones in an angular position.

On his admission to the hospital, which was just five weeks after the injury, there was great shortening, angular deformity, and a large amount of irregular callus. The right thigh was found, upon measurement, to be three and a half inches shorter than the left.

Hoping that complete consolidation of the callus had not taken place, the resident surgeon attempted to effect extension by the traction of a heavy weight continued for several days, but without success. As the difference in the length of the two limbs was so much that great lameness must necessarily ensue, it was determined to re-fracture the deformed callus, and to endeavor to effect a cure without much deformity.

After more than six weeks from the receipt of the original injury, a splint was bound along the leg and thigh up to the deformed union, to make the knee rigid, and to give a powerful leverage. The knee of the operator was placed as a fulcrum on the most salient point of the deformity, and the callus was broken up by leverage of the limb and splint. Extension was then made by manual force, and was afterwards continued by means of a weight of twelve pounds applied by adhesive straps, as in ordinary treatment of fracture of the thigh. The amount of shortening was reduced to three-quarters of an inch; and this will probably decrease under the continued weight extension. The

patient is now doing well, and there is every prospect of his having a useful limb.

The case illustrates how firmly a mal-apposition may be consolidated in a period of six weeks, and how by re-fracture and extension the most of the shortening and deformity may be at once overcome.

INJURY OF SPINE, PROBABLY FRACTURE—PARALYSIS—DEATH OF THE PATIENT.

A laborer, aged 40, was digging a well, when the rope by which the earth was raised to the surface parted, and the loaded bucket, weighing one hundred and seventy-five pounds, fell upon him from a height of thirty-five feet. The tremendous blow received on the head forced the spinal column into extreme anterior flexion; and at the limit of flexibility the spine received a severe strain, or was fractured.

The portions of the spinal column which most generally receive the greatest injury in such form of indirect violence are the points where the greatest amount of flexibility meets with resistance. The points where the flexibility meets inflexibility, and where there is the greatest latitude of motion, are at the cervico-dorsal and dorsi-lumbar articulations; and experience shows that these localities almost universally suffer the most. The position of the injury in this case is at or near the dorsi-lumbar junction, where it is almost always found, and, as a consequence, the man had complete paralysis of motion and sensation of the body, and lower extremities below the umbilicus, and was unable to void the contents of the rectum and bladder. He breathed by the diaphragm and intercostals, without any aid from the abdominal muscles.

The gravity of spinal injury is in proportion to its position high up in the vertebral column. Should inflammation extend up the cord, the intercostal muscles would be paralyzed next, because the phrenic nerve, which goes to the diaphragm, comes off from the third, fourth, and fifth cervical, while the intercostal nerves are derived from the dorsal branches of the cord. The patient, however, would not necessarily die, when even the intercostal and abdominal muscles were paralyzed, for there have been cases in the hospital where men have lived a week breathing by the diaphragm alone, or with possibly the aid of the serratus magnus anticus; though it would seem that respiration cannot be kept up very long solely by the action of these muscles.

The abdomen was distended and tympanitic, on account of the want of tonicity and pressure of the abdominal muscles, and probably also because the paralyzed state of the lower bowel prevented the expulsion of flatus. Dr. Levis stated that, in severe spinal injury, for the first few days the bowels are obstinately constipated, and there is retention of urine in the bladder necessitating the introduction of the catheter, but that the sphincters soon become so entirely relaxed that urine and feces are voided without the control of the patient.

The diagnosis of fracture in this case was not certain, as there was no marked evidence of displacement, and shock or violent sprain by ante-flexion would be sufficient to produce the paralytic symptoms. It was found that there was some sensation of the integument a short distance above the umbilicus; but there may be sensitiveness of the skin when the underlying muscles are paralyzed. Dr. Levis said he had seen an instance of sensitiveness of the skin on the front of the chest in a case of fracture of the spine high in the dorsal region, which is readily explained, as branches of the superficial cervical plexus descend over the front of the thorax.

The only treatment pursued in the case was to let the patient lie in the supine position on the bed, which acts as a splint, supporting the injured parts and giving the patient the most comfort. In order to prevent, as far as possible, the occurrence of bed-sores, a water-bed

was employed; but this only delays their development in a measure, for since the innervation of the parts is interfered with by the injury of the spinal cord, the least continued pressure on the heels and sacrum forces the blood from the capillaries, and sloughing invariably follows.

The region of insensibility, as tested by a sharp point touching the skin, was very evidently increasing, and one week after the receipt of the injury the patient died, probably from inflammation and effusion up the course of the cord, and interference with the innervation of the respiratory muscles, which is probably the most frequent cause of death in spinal injury.

THE RADICAL TREATMENT OF HYDROCELE BY INJECTION OF CARBOLIC ACID.

A man came to the hospital suffering from a hydrocele of the vaginal tunic of the testicle on the right side, which he stated first began to trouble him a year previous. Six weeks before his admission it had been tapped, and more than a pint of fluid was drawn off, but it rapidly re-developed, and he accordingly presented himself for radical treatment.

As the ordinary mode of treating hydrocele by injecting tincture of iodine into the sac is sometimes unsuccessful, and at other times is followed by an excessive degree of inflammation, and even by suppuration, it was determined to employ carbolie acid as an irritant, which would, it was believed, excite sufficient inflammatory action, and yet, as it checks the formation of pus when externally applied, would have a tendency to limit the inflammation in the sac within the degree of suppuration.

After the serous fluid, which amounted to a pint, had been drawn off by the trocar, the operator injected into the vaginal tunic two fluidrachms of a solution of carbolie acid in glycerin, in the proportion of one part by weight of crystallized acid to two of the menstruum. He then, by manipulation, brought the fluid in contact with every portion of the serous surface, in order that the approximated sides of the sac might be rendered adherent by lymph thrown out upon the supervention of plastic inflammation. The patient did not experience any pain whatever from the introduction of the fluid, such as is the case when tincture of iodine is injected, and which is severe and extends along the course of the genito-crural nerve. It was thought that this painlessness of the procedure might be due to the fact that carbolie acid is capable of inducing local anæsthesia.

At the end of twenty-four hours the tumor was quite large, but had rather a doughy feel, and there seemed to be more inflammation present than generally exists one day after the usual iodine injection has been used; but the swelling was neither painful to the patient nor very sensitive to pressure.

The remarkable feature of the case is the almost entire absence of pain in this method of treating hydrocele.

Carbolie acid seems theoretically to meet all the requirements of the radical cure of hydrocele; but it will require continued experience to determine the practical value of this new method of treatment.

CASES OF OVIARTOTOMY.

BY WASHINGTON L. ATLEE, M.D.,
Of Philadelphia.

Reported by J. EWING MEARS, M.D., of Philadelphia.

CASE 244.—*Multilocular ovarian tumor accompanied by ascites—Paracentesis abdominis performed forty-seven times—Three thousand two hundred and eighty-eight pints of fluid removed during a period of three*

years—Incision five inches in length—No adhesions—Recovery.

October 12, 1871, Dr. Atlee visited Miss M. A. A., at the request of Dr. B. F. Hamilton, of Emlenton, Venango County, Pennsylvania. The patient was forty-four years old; menstruation commenced at the age of thirteen, had always been regular, and had never been painful until she became dropsical.

Dr. Hamilton gives the following history of the case: He saw Miss A. October 15, 1868, in consultation with Dr. Wallace, of Brady's Bend, at which time he found the abdomen enormously enlarged, and learned from the patient that the enlargement was first noticed four years before this visit. She also stated that about one year ago the wall of the abdomen gave way at the umbilicus, permitting about one gallon of fluid to escape; through this opening the fluid discharged for several days. The general health of the patient was much impaired; there was great emaciation; the complexion was sallow; orthopnea existed; the bowels were constipated, the urine scanty, and digestion was bad. On consultation, it was decided to perform paracentesis abdominis, which was done by Dr. Wallace, removing eleven and one-half gallons of a dark reddish-brown fluid. The operation was followed by symptoms of great prostration, which were relieved by the administration of stimulants.

She was placed upon full doses of quinine and tincture of the chloride of iron three times daily, under which treatment her general health improved, although the fluid began to reaccumulate.

On the 30th of November Dr. Hamilton tapped the patient again, removing ten and one-half gallons of fluid, of the same consistence, but much lighter in color. After the removal of the fluid he detected a solid tumor in the left lumbar region, apparently about the size of an ordinary placenta. As before, her health improved after the tapping.

The fluid reaccumulating, the patient was repeatedly tapped, and up to November 28, 1869, the tumor did not appear to have increased in size. On that day she was seized with a chill, followed by fever, and great tenderness over the entire abdomen, with acute pain at the seat of the tumor. A diagnosis of inflammation of the tumor with peritonitis was made. In eight days the symptoms of inflammation subsided, and the patient convalesced slowly.

January 5, 1870, tapping was performed, removing six gallons of fluid. The tumor was found to be growing rapidly. After this the patient was tapped very frequently, and the tumor continued to increase in size.

Dr. Hamilton states the total number of tappings to have been forty-seven, removing in all four hundred and eleven gallons of fluid.

Ovariectomy was performed, and the patient recovered.

Dr. Hamilton stated to Dr. Atlee that he believed it to be a case of ovarian tumor accompanied by ascites, which statement was confirmed by the operation.

TRANSLATIONS.

SYPHILITIC INFECTION WITHOUT COITUS.

From the German of Professor LEWIN.

BY DR. WM. ASHBRIDGE.

(Concluded from page 731.)

6. THAT the more advanced and intense manifestations of syphilis can show themselves in cases in which no mercury has been administered. The physicians who are opposed to the use of this drug in syphilis

are, as is well known, divided into two classes, one of which supports the view that mercury is in a greater or less degree the cause of all tertiary symptoms, while the other asserts that only particular forms of these affections are due to this influence, as in the statement of Baresprung that "the tertiary forms occur especially in those to whom quicksilver has been early and carelessly given," and "it is too much to assert that they [*i.e.*, tertiary symptoms] are entirely due to mercury, for they never occur as the consequence of the treatment alone, but, as they always bear the stamp of the original disease, they must be regarded as the fruits of syphilis occurring in a constitution already injured by mercury."

Although from many sides this accusation against this mode of treatment has been disproved, and especially by the proof by Virchow that the original syphilitic affection, "the hard chancre and condylomata, have the same history of development as the deposits which are looked upon as the distinctive mark of tertiary changes," still, cases like this of children with tertiary affections born from mothers by whom mercury has never been used have a more decided influence in argument.

7. The case of the child of the mother infected by the sore on her lip is an important one in yet another respect. To which parent did it owe its disease? The father at the mother's infection had a specific ulcer upon the lips, which most probably was not an initial lesion, but an erosion or induration of later date, possessing infecting power. Ulcers of this character occur in somewhat advanced syphilis, at least several months after infection. For this reason, there is nothing opposed to the supposition that in this case the father endowed the embryo with syphilis at the time the mother was impregnated, thus furnishing an instance of the infection of the embryo through the seminal fluid of the man, the mother not being infected through this channel, an occurrence probably somewhat rare, asserted as possible by some eminent authorities, but denied by others.

8. That the appearances due to hereditary syphilis in full bloom at the time of birth can gradually enter into a state of latency. In this child, at the time of admission into the hospital, four weeks previous to the date of the lecture, in addition to a well-marked papular eruption on the skin there was also a plentiful crop of pustules of various sizes up to that of a pea; at this time the first-named eruption had faded to a trace, the pustules had dried, and the crusts had fallen. The subcutaneous and the affection of the testicle were undergoing like changes. To prove that this period of latency can extend over a period of years, and thus allow the possibility of a syphilis congen. tarda, the second group of patients—composed of a mother, two daughters, and a grandchild—was presented. The mother, a woman of forty-nine years, of a healthy family, and herself of a good constitution, had been twice married, and was the mother of two children. Up to her twenty-fifth year she had always been healthy; at that time she bore her first, which she suckled herself. Owing to the abundance of her milk she took a second child to nurse, which, as was demonstrated later, was the offspring of a syphilitic mother, was affected with congenital syphilis, and finally infected the breast of its foster-mother, upon which a sore made its appearance. The woman, not knowing the character of the sore, continued suckling her own child, so that it was infected per os. The disease was at once recognized by the physician who was called in, and a careful mercurial treatment was carried out in all three cases. The strange child, the source of the mischief, after some months died; but the infected mother, with her child, after having suffered for some time from severe throat-

affections, apparently recovered. It soon became evident that the husband and father was also infected; eruptions quickly made their appearance, going on to the more severe pustular forms, accompanied by nodes upon the forehead. Gradually symptoms of brain-disease came on, which at last rose to such severity that an apoplectic attack resulted; in a soporose state the man was brought to the hospital, where he soon died. At the autopsy (made twenty years before the date of this lecture) evidences of softening of the brain, and clots, both old and new, were found, and in the absence of any other cause for the disease the changes found were adjudged to be due to syphilis. Some time after the death of her first husband the woman married a second time; the second husband being a man who up to that time had been perfectly healthy, but who, shortly after marriage, suffered much from troubles in his throat, and also from rheumatic pains, but was still living and in good health. In the woman the syphilis reappeared several times, leaving marks of its ravages in the larynx and pharynx, as could plainly be seen by the use of the laryngoscope. She soon became pregnant, and by the eighth month was delivered of a child which died from constitutional syphilis at the age of five and a half months. A second child was born, a girl, who was still living, aged thirteen years; she was healthy up to her sixth year, when a pustular eruption appeared, and for the treatment of this she came to Professor Lewin. A temporary cure was effected by a course of mercurial treatment, but after two years an ulcerated form appeared, which continued to reappear at intervals, but gradually assuming a milder type. At this time the girl was to all appearance healthy, and nothing about her attracted remark, except a universal adenitis somewhat pronounced. The history of the elder sister, who was infected from the nipple of her mother, is also of importance. In the throats of both mother and daughter were marks of their former sufferings, and between the two there was observable a striking resemblance. In her sixteenth year this girl suffered from lupus upon her right thigh, accompanied by periostitis upon the tibiae and forehead, which healed under the use of mercury, but returned at intervals. In her seventeenth year she married a man previously healthy, but who a short time after marriage became ill, and eighteen months later died, after being eight days in the hospital. No autopsy was made; but the death was reported as one from tuberculous meningitis. There was a child from this marriage, which was born three or four weeks before full term and died in fourteen days from general debility. The woman again married, the second husband remaining healthy; the child of this marriage, seventeen months old, although in other respects well nourished, suffered from—1, a universal lichen, presenting the appearance of lichen scrophulosorum; 2, an ulcer upon the right thigh, looking as if due to the ulceration of a syphilitic deposit; 3, an infiltration of the subcutaneous tissues of the right instep, through which could be felt some enlargements of the bones lying beneath.

From the histories of the patients composing this second group the following conclusions were drawn. 1. That the organism of the female can maintain the influence due to syphilitic infection in the most enduring manner. This influence appears, however, to interfere less with the intra-uterine life of the child; for it can come into the world apparently quite healthy; but the germ of future syphilitic disease is planted in the offspring, which may remain latent for years. The second child of the grandmother of Group 2 was born at full term, in good health, and at the age of five years, fifteen years after the infection of her mother, an eruption appeared, the connection of which with syphilis it is not possible to doubt. 2. That syphilis can in some in-

stances be inherited from the maternal side alone. The father of the younger of the two daughters belonging to this group was still living, and in good health. The two husbands of the elder sister were at the time of their respective marriages quite healthy; and although some doubt might exist as to the true nature of the disease to which the first succumbed, still in the case of the syphilitic infant its disease must be ascribed entirely to its mother, as the father was in perfect health. The third group consists of a fifth infant. The mother of this child, in February, 1871, was admitted into the hospital with syphilitic ulceration of the genitals and throat. On the third day after her admission she was delivered of a child, which died at birth. Three years previously she had borne a child which lived in full health. After a course of mercurial treatment the patient was discharged cured, as all the symptoms of syphilis had disappeared. This woman appeared a second time at the hospital two years later, and again, somewhat prematurely, was delivered of a child. The mother upon examination presented pigmented scars upon the legs, and stated that since her first discharge from the hospital she had suffered from ulcers which had been very tedious in healing. From the growth of the hair, nails, etc., the infant was seen to be nearly at full term; on the palms of the hands and the plantar surface of the feet were dark-red spots; on some of the fingers were impetiginous crusts, surrounded by an inflammatory areola; on the forefinger of the right hand was a single bulla. Along the nail of each great toe, having the form of a half-moon, was a spot upon which the skin was wanting, presenting a mummified appearance, and bordered by a line of bright-red tissue, where was apparently an inflammatory reaction. This case of congenital syphilis presented, in addition to the general eruption, a single spot of pemphigus, and especially the affection of the borders of the nails alluded to above, which, so far as is known to Professor Lewin, has not been described. The question could be raised whether the process had been dry during its whole course, or whether this condition was left after a deep-seated bulla of pemphigus, in which the process of mummification had followed the first state of the eruption.

The three children whose histories have been given were all vaccinated with humanized lymph; in all three the course was normal, differing in no respect from that seen in the healthy infant, and the lymph obtained from the vesicles could not by a microscopic examination be distinguished from that obtained under similar conditions from a healthy infant. This goes to strengthen the assertion that vaccination takes a normal course in children with congenital or acquired syphilis.

TREATMENT OF CHOLERA.—Dr. William Henry Thayer believes that in the treatment of cholera the method which promises the greatest degree of success is the administration of calomel in frequently-repeated doses until the discharges lose their characteristic watery appearance, become green or brown, and have a fecal odor.

Given hourly in ten-grain doses until colored evacuations are produced, its administration is attended with relief of the epigastric distress, with improvement in the pulse, and with restoration of warmth in cases which were running into the stage of collapse.

Dr. Thayer believes that the essential pathology of cholera consists in a blood-change, by which the red corpuscles lose their power of oxygenation and cause a general arrest of the circulation.

He considers it to be highly probable that calomel, acting primarily on the portal system, through the intestinal mucous membrane, relieves secondarily the

congestion of the systemic capillaries, thereby arresting the destruction of the red corpuscles, while it eliminates the choleraic poison by the bowels. He concludes from his observations during various epidemics that all nourishment in the first or second stage is hurtful, as no food can be digested; that opium is useless unless at the very outset; that alcohol has no effect in restoring the warmth; that external heat is useless, the warm bath very injurious, and friction of no avail; and, finally, that as near an approach to repose as it is possible to attain, with cold affusion, moderate draughts of water or bits of ice, sinapisms to relieve the cramps, and the continued use of calomel, will give the best results possible for us to obtain. Of thirteen cases seen during the first stage, twelve were treated exclusively with calomel, and recovered, while the one not treated with calomel died.—*The Medical Record*, July 1, 1873.

INTUSSUSCEPTION.—Dr. Affleck reports two cases of intussusception in children. 1. A child, aged seven months, generally healthy, had diarrhoea, vomiting, severe retching, and pain, which resisted ordinary remedies. On the fourth day blood passed per anum. Large enemata were at once rejected; no hernia was present; inflation of the bowel by bellows was tried without success; fluid mercury was given by the mouth, but the patient died on the fifth day. On post-mortem examination, an invagination of the ileum into the cæcum was found in the right iliac fossa. The bowel above was greatly distended; below it was pale and empty.

2. The second case was that of a child aged five months, previously healthy. In the course of a diarrhoea, a copious evacuation was followed by a sudden cry, vomiting, retching, and exhaustion; after which no fæces passed, only blood. Nothing was felt in the rectum; there was no hernia; the abdomen was soft. Enemata were at once expelled, but strong inflation with the bellows after two or three minutes suddenly overcame the resistance, and the abdomen became tympanitic. Vomiting ceased; a warm bath and castor oil were followed by a free evacuation, and the patient next day was quite well.—*British Medical Journal*, July 26, 1873.

THE INFLUENCE OF DIGITALIS ON THE WEAK HEART OF TYPHUS FEVER.—At a meeting of the Medical Society of the College of Physicians of Ireland, Dr. Grimshaw reported that he had recently used digitalis extensively in the treatment of severe typhus fever, and had come to the following conclusions:

1. Digitalis does not shorten the duration of the fever or influence its characteristic range of temperature.
2. It prevents or lessens delirium, and improves the tension of the pulse, which falls somewhat in frequency during its exhibition.
3. A sudden fall in the pulse-rate and temperature is an indication of danger, and calls for the withholding of the drug.
4. Suitable doses are from half an ounce to an ounce and a half of the infusion every second or third hour, and stimulants should be given in addition if, after twenty-four hours, the digitalis has not produced beneficial effects on the pulse.—*British Medical Journal*, July 26, 1873.

DEVELOPMENT OF BONE.—Ludwig Steda (Report of the Scientific Association of Riga) has contributed an elaborate memoir on this subject. He endeavors to establish the following: Osseous tissue is formed without division of cartilage, and is a direct transformation from the connective-tissue element. Where bone is preceded by cartilage, as is the case with the long bones, it is always observed that the cartilage atrophies noticeably from the centre, thus permitting the cells of the periosteal layer to penetrate within the shaft, there to undergo true ossification.

PHILADELPHIA MEDICAL TIMES.

A WEEKLY JOURNAL OF
MEDICAL AND SURGICAL SCIENCE.

The Philadelphia Medical Times is an independent journal, devoted to no ends or interests whatever but those common to all who cultivate the science of medicine. Its columns are open to all those who wish to express their views on any subject coming within its legitimate sphere.

We invite contributions, reports of cases, notes and queries, medical news, and whatever may tend to increase the value of our pages.

All communications must bear the name of the sender (whether the name is to be published or not), and should be addressed to Editor Philadelphia Medical Times, care of the Publishers.

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EDITORIAL.

INSANITY IN ITS RELATION TO CRIME.

THERE lies on the table before us a little book* upon a subject so important and containing sentiments so extraordinary that we propose to make it the subject of an editorial notice. Although it is elegantly written, attractive and forcible in style, and holds the attention of the reader from the first to the last page, yet we deeply regret that it has been produced by a member of our profession. The modern court—the American system of criminal jurisprudence—offers day by day its farces, at which the philosopher might with equal justice laugh or cry. But it is the legal, not the medical, profession which is responsible. Whatever the theory may be, so far as our experience goes, very generally in practice the district attorney looks upon himself as the sleuth-hound set by society to hunt down: in his opinion it is not his place to separate the innocent and the guilty, but to *convict*. Often the medical expert alone stands between him and his victim, and, although honest and capable, is viewed simply as an obstacle in the way, to be cajoled, ridiculed, trapped, browbeaten, and if possible battered into oblivion. Of all the points upon which medical experts testify, no one is more delicate, no one more important, no one the subject of more abuse, than insanity, and for this very reason it becomes the professional man to speak with caution upon this subject; but we cannot refrain from

expressing our astonishment that the gentleman chiefly through whose testimony, ophthalmoscopes, and paraphernalia McFarland was acquitted, should now come forward as the advocate of sentiments which would suit the most bloodthirsty Jeffreys.

It cannot be gainsaid that when public opinion is such as to justify murder under certain provocations, murder committed under such provocations will often be justified or condoned by juries upon the plea of insanity. For example, so long as society justifies a man in shooting the seducer of his daughter, so long will juries often find insane the sanest man that does such an act. But this has nothing to do with the merits of the plea of insanity. When a jury has determined to acquit the prisoner at the bar although he be guilty, excuse will not be wanting; if the plea of insanity be insufficient, some other will do as well.

Leaving out of sight these cases in which the jury simply uses the plea of insanity as an excuse for doing what it has determined upon, injustice is, we think, at least as often done in the condemnation of the insane as in the acquittal of the sane.

Like everything that comes from his pen, the book of Dr. Hammond is in many respects very able. The argument that underlies it is most specious, and, having its foundation in truth, puts on the appearance of truth. Yet in our judgment the truth is warped, distorted, mixed with fallacies until it makes an image half clay, half iron, which is but a caricature of justice. Stated briefly, the fundamental idea or argument of the book is,—the individual is nothing, society is everything; the protection of society being paramount, the liberty or life or death of the individual is as nothing when opposed to the general good; therefore, if the individual be insane, unaccountable to God, he is accountable to society, and should be punished,—punished, too, as severely as the sanest!

"Laws do not always rest—in fact, cannot always be based—upon the principles of abstract justice," says Dr. Hammond. "When necessity requires it, both law and equity are set aside, and brute force takes their place." True, in a measure: the fallacy consists in applying this to the treatment of the insane criminals, since no necessity exists for the application of extreme brute force.

"A law, therefore, may be unjust as regards an individual or a few individuals, and beneficial to society at large: it is then a good law." Granting for a moment the truth of this, the same fallacy follows its application as has just been noted. It is not necessary for the protection of society that the insane murderer should be hung. Further,—

* *Insanity in its Relation to Crime.* By William A. Hammond, M.D. New York, D. Appleton & Co., 1873.

although, since we have not been bred in the law, we would here tread most reverently and hesitatingly,—the conviction is strong with us that the philosophy of law put forth by Dr. Hammond is incorrect. We doubt very much whether a law that is unjust to the individual can be beneficial to society. The moment a law is distinctly perceived to be unjust, men will rise up against it and condemn it, and it can only exist as a law of terror and of military force. In a country like this, where the basis of all law is public opinion, public opinion will sooner or later overthrow such a law.

The chief example which Dr. Hammond adduces of a good law unjust to the individual we hold to be an atrociously wicked law,—not framed for the good of society, but for the good of one individual at the expense of society,—a law for the good of the despot, which, a rag of mediæval feudalism, still clings to the codes of some communities. It is “the attainder of blood,” the punishing of the children for the high treason of the father. As must be eventually the fate of all such laws wherever public opinion rules, in this country this “attainder of blood” has been abolished.

The only other example adduced by Dr. Hammond as a just law good for society but unjust to the individual seems to us equally unfortunate. It is the punishing of an individual for breaking a law of whose existence he does not know. So far as criminal cases are concerned, every sane man knows what is, and what is not, a crime; and in regard to ordinances the theory is that the individual must inform himself; and we can see no injustice in punishing him for neglecting this duty.

We have no space to follow out in detail the argument of Prof. Hammond: though fair to look at, it seems to us so pieced with fallacies that, like the statue of clay and brass, it needs but to be struck in its weaker parts to totter to the ground. We can only refer to the chief among these fallacies, a constantly recurring one, *i.e.*, that society must needs hang the insane murderer to protect itself.

We have already alluded to the influences exerted by the occupation of the officers of the law to lead them into severity towards the individual. We may scarcely wonder that a judge, bred as a district attorney, or even as a member of the criminal bar, should by long habit so destroy all that sympathy which is due even to the outcast—should so far forget his sense of decorum—that, under the most solemn circumstances, when, as the instrument of the law, he is pronouncing doom, he should taunt the criminal as follows: “You have been

convicted of the crime of murder. It has been alleged in your defence that you were actuated by an irresistible impulse. This may be true; but the law has an irresistible impulse to punish you; and it therefore becomes my duty to sentence you to be hanged;” or at the words of the French magistrate, “These men are madmen; but it is necessary to cure their mad acts in the *Place de Grève*.”

We may not wonder, we repeat, at these sayings; but we do wonder that a physician, professedly an alienist, should quote them approvingly, and should himself write, “Looking at the matter, therefore, from a similar point of view, no valid argument can be adduced against the punishment of the insane, even though they be morally irresponsible for their acts by reason of delirium, dementia, morbid impulse, emotional insanity, or other forms of mental aberration,” or the still more extraordinary sentiment, “But the individual who has a sufficient intelligence to know that pointing a loaded pistol at a human being, cocking it, and pulling the trigger, are acts which will cause the death of the person against whom they are directed, should be subjected to the same punishment for a homicide as would be awarded for a like offence committed by a sane person.”

We must protest against such sentiments as these of Dr. Hammond. To hang an insane man is simply to commit disgraceful, unnecessary, vengeful murder. Disgraceful, because alike at variance with Christian charity and modern science; unnecessary and vengeful, because out of it can come no good indirectly, and because it is not required for the protection of society against the individual upon whom the punishment falls.

Sequestration of the insane, the placing of them where they can do no injury, is certainly all that society needs for protection.

Society needs protection from the abuse of insanity by sympathizing juries far more than it does from the really insane criminal. A law requiring the sequestration for life of every man proved guilty of deliberate homicide, yet acquitted on the plea of insanity, would meet both difficulties at once: the sane would not escape punishment, and the insane would not be legally murdered.

Instances are not rare, and are, indeed, quoted by Dr. Hammond, in which an insane person has for weeks longed to rid himself of his life, but, having been held back by the fear of punishment for sin after death, has deliberately chosen murder, because the law would hang him for it and save him the sin of suicide,—or, recognizing the sin of murder, because he would have time to repent between

the committal of the act and the execution. What a seemly sight, to see such an insane criminal rejoicing at the gallows, thanking the sheriff and his minions for their aid in carrying out his designs!—in the wild delirium of delusion, resigning his soul into the hands of his Maker, as the law launched him into eternity.

Says Dr. Hammond, "Some of the insane are such monsters of depravity that they should be slain upon the same principle that we slay wild and ferocious beasts." Society needs protection from the smallpox, or from the pestilence. The insane murderer kills only his man,—the pestilence its thousands. The insane man is not morally responsible, has no power of choice; the pest-stricken man is not morally responsible, has no power of choice; but the latter, spreading the deadly poison, is far more the enemy of society than the former. The wild victim of hydrophobia in his madness may attack his fellows. Enemies of society, all of them. Hang them, then, on the one gibbet,—the delirious pest-stricken, the chattering insane, the tortured madman,—and call on Christian civilization, the world over, to admire with what energy society in America protects itself.

THE practical working of the theory of Dr. Hammond is seen in the case of David Montgomery, an epileptic, recently tried at Rochester, N.Y. It was proved that he was insane from recent convulsions for several days before the homicide; but, on Dr. Hammond's testimony that he was conscious at the time, he was convicted and *sentenced to be hung*. Drs. Gray and Cook testified to the familiar fact that epileptics often talk and act quite rationally for several days, being meanwhile really insane, and are afterwards entirely unconscious of what has passed, and denied the responsibility of the prisoner. This case was pending for a year and a half, the execution being postponed, until finally the prisoner became so evidently and completely demented as to require his commitment to the asylum for insane criminals at Auburn.

THE Trustees of Jefferson Medical College having requested Professor Joseph Pancoast to withdraw his resignation of the Chair of Anatomy in that institution, he has complied with the request, and will discharge the duties of the chair during the ensuing session.

LEADING ARTICLES.

REMARKS ON THE NEW CHEMICAL NOMENCLATURE.

BY W. H. H. GITHENS, M.D.

THE revolution which chemical science has undergone within the last fifteen years, and which has recently culminated in the new nomenclature, has been the result of a principle which was first recognized in organic chemistry, but which has more recently been acknowledged as applying equally to inorganic. This principle is, that in a chemical compound the arrangement of the atoms is of quite as much importance as their kind and number, and for this reason new formulæ were constructed to express this molecular arrangement.

To Berzelius we are principally indebted for the admirable system of nomenclature which is still in use in chemical science. Since his death changes have been made in details, but the general plan remains the same. By analysis and calculation he fixed the atomic weights of more substances than any other individual. Some of these equivalent numbers have been changed by later writers, and not always correctly.

At the suggestion of Sir Humphry Davy, Berzelius fixed the combining weight of oxygen at 16, of carbon at 12, and of sulphur at 32. In the case of these and a few others he was opposed by Dalton and other eminent chemists, who estimated them at one-half the value placed upon them by him: the opinions of Dalton and his friends had most weight with chemists in general, and their valuation was the accepted one.

After the lapse of years, the opinions of Berzelius were revived by Laurent and Gerhard. Careful research and comparison were made by these gentlemen, who endeavored to prove the inconsistencies of the accepted views. The principal writings of Laurent were published posthumously, and were translated for the Cavendish Society's publication for 1854.

An atom is a particle of matter which undergoes no division in chemical metamorphosis. It is the smallest particle of matter which can exist in a state of combination.

A molecule is formed when one atom unites with another atom, either different from or like itself. It is a group of atoms united by chemical affinity, and is the smallest particle of any substance which can exist in a free or uncombined state in nature. Molecules differ from one another because the atoms of which they are composed differ. They may vary in kind, in number, or in relative position.

Thus, a molecule of water differs from one of salt in the *kind* of atoms. A molecule of calomel differs from one of corrosive sublimate in the *number of chlorine atoms*. A molecule of oil of lemon differs from one of oil of turpentine in the *arrangement* of its atoms.

According to the law of Ampère, *equal volumes of all bodies in the gaseous state contain the same number of molecules*. From this law it follows that all gaseous molecules must be of the same size, and that the comparative weight of any molecule may be determined by comparing the weight of any given volume with the weight of an equal volume of a chosen standard,—hydrogen.

The molecule of hydrogen contains two atoms; when it unites with chlorine we find that equal bulks or volumes of each are required, and that the product fills the space required by the two separately. When hydrogen unites with oxygen, one volume of oxygen requires *two* volumes of hydrogen to satisfy its chemical affinity, but the product in the gaseous state occupies two volumes only, as in the previous case. When hydrogen unites with nitrogen, one volume of nitrogen requires *three* volumes of hydrogen, but the product occupies, as before, two volumes only.

These instances might be indefinitely multiplied, but they are sufficient to illustrate the fact that *compound molecules occupy double the space required by simple ones*.

The fact of the combining weight or atom of one element having the power to unite with one or more combining weights or atoms of another has called into existence a new term,—“*quantivalence*.”

The quantivalence of an element is the expression of its combining power in hydrogen units.

With respect to this power, substances have been arranged into classes, as monads, dyads, triads, tetrads, pentads, hexads, and heptads. When the use of the adjective is necessary, atoms are called univalent, bi-valent, tri-valent, etc. Elements whose quantivalence is odd—I, III, V, VII—are called *perissads*. Those whose quantivalence is even are called *artiad*s. As an element may form several compounds with the same substance, its quantivalence is not invariable; it always increases or diminishes by two; a perissad cannot become an artiad.

EXAMPLES OF VARIATIONS IN QUANTIVALENCE.

Monads	Hydrogen I.	Dyads	Oxygen II.
	Chlorine I, III, V, VII.		Sulphur II, IV, VI.
	Bromine I, III, V, VII.		Calcium II, IV.
	Iodine I, III, V, VII.		Magnesium II.
Triads	Sodium I, III.	Tetrads	Zinc II.
	Potassium I, III, V.		Carbon II, IV.
	Silver I, III.		Lead II, IV.
	Nitrogen I, III, V.	Hexads	Chromium II, IV, VI.
	Phosphorus I, III, V.		Manganese II, IV, VI.
	Arsenic I, III, V.		Iron II, IV, VI.

The *equivalent* or *atomic weight* of any substance is its relative weight as compared with hydrogen, which is considered the unit.

In order to ascertain the atomic weight, we must know—*first*, the weight of the quantity which will combine with one atom of hydrogen; *second*, the molecular weight of the hydrogen compound.

Example.—The analysis of water shows that in 100 parts there are 88.89 parts of oxygen and 11.11 of hydrogen; the ratio of 88.89 to 11.11 is 8 to 1. If the molecule of water contain only one part by weight of hydrogen, and eight parts by weight of oxygen, its molecular weight will be $1+8=9$. But each molecule may contain two, three, or more times this proportion of each ingredient. To determine this point, we recall the law of Ampère, that equal volumes of all bodies in the gaseous state contain the same number of molecules, and also the fact that a compound body will fill two volumes. Weighing one litre of hydrogen, we find its weight to be .0896 grammes; two litres of vapor of water weigh 1.6094 grammes. When we divide the weight of the water vapor by the weight of the hydrogen, $1.6094 \div .0897 = 18$, the molecular weight of steam and also of water. Thus water is shown to consist of sixteen parts by weight of oxygen, and two of hydrogen.

The atomic weight of any substance being the smallest quantity by weight which can enter into combination, by comparing the molecular weights of the various compounds of the same element the atomic weight becomes more certain. Thus, the molecule of water contains sixteen parts by weight of oxygen, a molecule of carbonic acid gas thirty-two parts, etc. In no known compound are there fewer than sixteen parts by weight of oxygen in a molecule. Thus sixteen is proved to be the atomic weight of oxygen.

In consequence of the difficulties surrounding the exact fixation of the atomic weights and the molecular composition, many errors and differences of opinion have been caused; these are now disappearing, and in the new tables we have undoubtedly a near approach to exact truth. Below are given a few of the more prominent elements:

Doubled.

Changed but little, if at all.

Aluminium 27.5	Antimony 122.
Bismuth 210.	Arsenicum 75.
Calcium 40.	Bromine 80.
Carbon 12.	Chlorine 35.5
Copper 63.5	Iodine 127.
Gold 196.6	Hydrogen 1.
Iron 56.	Mercury 200.
Lead 207.	Nitrogen 14.
Magnesium 24.	Phosphorus 31.

<i>Doubled.</i>		<i>Changed but little, if at all.</i>
Manganese	55.	Potassium 39.
Oxygen	16.	Silver 108.
Sulphur	32.	Sodium 23.

It was the original proposition of M. Cannizarro and M. Wurtz to double the atomic weights of all the metals.

(To be continued.)

CORRESPONDENCE.

TO THE EDITOR OF THE PHILADELPHIA MEDICAL TIMES:

DEAR SIR,—Your recent editorial remarks under the caption of the "Wills Hospital" suggest to me the propriety of stating some facts which may avert the creation of an erroneous impression in regard to the present functions of the institution.

In the bequest of James Wills the object is stated to be for "the relief of the indigent blind and lame." Latitude given to the word "relief," in the opinion of legal counsel, permitted it to mean the medical and surgical treatment of them in the hospital that was endowed.

It would seem that the donor, in his goodness and simplicity, intended, by the indefiniteness of the wording of the will and the entire absence of details of his wishes, that the "Trustees or Managers" should have much discretionary authority in regard, as it is expressed, to "the rightful regulating of the establishment."

If the intentions of the will have not—through the force of circumstances which will be alluded to—been fully carried out, there has, nevertheless, been no perversion of the designs of the founder. The hospital has become exclusively an eye-hospital rather as the result of public demand or the necessity of patients than through active determination on the part of its managers so to render it. There has been no official action of that body excluding "lame" persons from its benefits.

The institution has been long popularly known as the Eye Infirmary, or the Eye Hospital, and, among medical men, as the Wills Ophthalmic Hospital. During the long period of my service as one of its surgeons I have never been applied to for the admission of a case of lameness; and, to my knowledge, such applications are not made. The pressure on the institution is for the admission of ophthalmic cases, and its limited wards are, unfortunately, almost always overcrowded with such patients. There is, therefore, no room for the admission of, nor, in the present financial condition, are there any means or facilities for the treatment of, the "lame."

There are also good reasons why the admission of diseases and injuries of the limbs producing lameness would be improper in the same institution with patients suffering from diseases of the eyes. Diseases and in-

juries of the lower limbs are frequently attended with suppuration and septic discharges which are dangerous in the vicinity of cases of eye-affections, especially of those recently submitted to important operations for the restoration of sight.

It has been exceedingly difficult, and at times impossible, to keep the wards of the Wills Hospital free from the infectious spread of inflammatory and suppurative disease; and my surgical colleagues will agree with me in the opinion that the risk of such calamitous epidemics would be greatly increased by having cases of the character I have alluded to placed in proximity to ophthalmic patients.

In illustration of this incompatibility, I may recall my once having seen in the institution, very many years ago, a moribund case of complete gangrene of both legs lying in a ward with ophthalmic cases occupying beds in the vicinity. Every hospital surgeon knows the danger of the spread of germinal matter from such a case, and its liability to produce destructive inflammation of the eye.

If the Wills Hospital were to admit the indefinite class of "lame" cases, it would soon become a very small and unimportant *general* hospital in character; for lameness results from such varied causes, as organic disease of the brain, producing paralysis of a leg, or by the crippling induced by spinal caries, etc. The hospital is now resorted to by a vast number of patients requiring attention to their eyes, of whom but a comparatively small number are admitted to remain in the wards: thus the institution has reached a utility far beyond what its founder could have hoped for.

In reference to your statement that "the foundation of the Orthopædic Hospital may have been rendered necessary by the non-treatment of orthopædic cases," I may be permitted to remark that a hospital for the lame and an orthopædic hospital cannot in functions substitute each other. Orthopædic surgery covers a far greater scope than lameness, and at the same time the majority of the cases of lameness are not proper for admission to an orthopædic hospital. Orthopædic cases, such as wry neck, spinal curvature, or a clubbed hand, would not be admitted to a hospital for the lame; whilst most of the injuries and diseases that cripple the legs would be excluded from an orthopædic hospital.

I am convinced that the institution is conducted as nearly in compliance with the letter and spirit of the will as is *practicable and right*. As some restriction in the number of admissions, and discrimination in regard to their character, must necessarily be made, I think that the beneficence of the bequest will be best fulfilled, and suffering humanity gain the most, by acting on the democratic principle of "the greatest good to the greatest number," and continuing the objects of the institution as they are recognized in its conventional title of the "Wills Ophthalmic Hospital."

Respectfully,

R. J. LEVIS, M.D.

REVIEWS AND BOOK NOTICES.

HANDBOOK OF PHYSIOLOGY. By WILLIAM SENHOUSE KIRKES, M.D. Edited by W. MORRANT BAKER, F.R.C.S., Lecturer on Physiology at St. Bartholomew's Hospital. A new American, from the Eighth enlarged English Edition. 12mo, pp. 656. Philadelphia, Henry C. Lea, 1873.

This handbook is so well known as to require no extended notice at our hands. In its enlarged form it is, in our opinion, still the best book of physiology, most useful to the student of medicine, crowded as he is during the winter months with a multitude of varied studies. We congratulate the American publishers on having replaced the reprint of the very old edition they have so long supplied the market, by this new edition, which is fully up to the demands of modern physiology. We predict for it a continued popularity.

A REPORT ON THE ORIGIN AND THERAPEUTIC PROPERTIES OF CUNDURANGO. By W. S. W. RUSCHENBERGER, M.D. Published by order of the Navy Department, Washington, 1873.

This pamphlet of twenty-five pages contains pretty much all that is known in regard to cundurango, its natural history and therapeutic value. We agree with the author that "the testimony as to the therapeutic value of this plant is not satisfactory."

DIE ORTHOPAEDISCHE BEHANDLUNG DER POTT'SCHEN KYPHOSE VON CHARLES FAYETTE TAYLOR, M.D. Aus dem Englischen übersetzt von Dr. PAUL BIESENTHAL, pract. Arzt in Berlin. Mit 20 in den Text eingedruckten Holzschnitten. Berlin, 1873.

This is a translation of a paper read by Dr. Taylor before the New York Medical Society. If any of our readers are so in love with the German as to prefer it to the Saxon, we commend this pamphlet to their notice.

RECENT IMPROVEMENTS IN OPHTHALMIC SURGERY. By D. S. REYNOLDS, M.D. Read before the Kentucky State Medical Society.

This little pamphlet contains a short account of some of the more recent operations performed for the removal of strabismus, conical cornea, and corneal opacities, with a few pages devoted to the treatment of ulcerations of the cornea, iritis, and sympathetic ophthalmia.

SELECTIONS.

CONCERNING THE CLOSURE OF ABNORMAL ANUS.

BY JOHN DUNCAN,

Assistant-Surgeon, Royal Infirmary, Edinburgh.

THE treatment of artificial anus has at various times attracted considerable attention. Till a comparatively recent date, its pathology was imperfectly understood; but the recognition of the septum as the main obstacle to closure, and the methods for overcoming that obstacle adopted by Schmalkalden, Physick, and Dupuytren, greatly elucidated the subject, and marked a very decided advance in principle and practice. Still, however, in a certain number of cases the destruction of the septum is not followed by obliteration of the abnormal orifice, and in these circumstances surgeons resort to plastic operations, of which the main characteristics are a bewildering variety and a great absence of success. I venture to add to the list yet another method, because I think it presents fewer chances of

failure than any hitherto devised. It rarely falls to the lot of a surgeon to consider the treatment of a case to which such an operation may be applicable. I make no apology, therefore, for illustrating my proposal by a solitary example. It possesses at least the merit of completeness, and assuredly exhibits no undue haste on my part to anticipate the efforts of nature.

The patient was a domestic servant, aged 45, whom I was asked to see by Dr. Inglis in April, 1869. She had been ill for a week before sending for Dr. Inglis, and had supposed her illness to be a bilious attack, unconnected with the swelling in her left groin, as this had often previously come and gone without causing discomfort. I found it to be a femoral hernia, already red, swollen, and emphysematous. An incision exposed a loop of the intestine gangrenous in its entire circumference, and rent on its convex surface. I divided the stricture and left the bowel *in situ*. The patient slowly recovered with an abnormal anus capable of admitting two fingers, and through which alone the fæces were discharged.

She was advised to await a possible natural contraction of the orifice, and I did not again see her till June, 1870. In the interval she had worn a truss, which, however, retained the fæces very imperfectly, and during the whole time there had been no passage by the rectum. The artificial anus had not diminished in size, and the septum was distinct and prominent. The orifice of the lower portion of the bowel had contracted somewhat, but was large enough to admit the little finger.

Instead of using the enterotome, I passed a double silver wire through the septum, about an inch and a half above its free margin. It was left loose for two days, and then one of the wires was gradually tightened, until on the eighth day it ulcerated its way out. The other wire had meanwhile, as I anticipated, become slightly imbedded by reunion of the deeper parts, and it now fulfilled the purpose for which it had been left, in being drawn out through the recent adhesions. The same day fæces passed by the rectum, and, after a week of considerable irritation, solid motions were regularly and naturally established. The patient was sent to the country, with instructions to remove the truss only for purposes of cleanliness.

I again saw her in December, 1871, and was disappointed to find that still no contraction of the orifice had taken place, although (the truss being regularly worn) all the fæces passed by the natural route. I repeated the former operation, including in the wire nearly an inch more of the contiguous walls of intestine. The condition of affairs was not thereby improved, and it was plain that the septum was no longer an impediment to closure. In April, 1872, I therefore performed the following operation:

Having thoroughly cleared out the bowel by purgative and enema, I dissected up the mucous membrane all round the abnormal orifice for more than half an inch, invaginated it, and sewed the raw surfaces together by six points of interrupted catgut suture, which were then cut short. I next pared freely the margin of the skin, and brought it together by means of silver wire.

During the after-treatment the parts were relaxed by keeping the thigh flexed. The diet was restricted to milk with lime-water. On the eighth day, finding the wound entirely united, I removed the stitches. A little froth issued from the small openings left by the removal of a corner stitch. These openings remained patent for some weeks, notwithstanding the use of the hot wire. Nothing but gas, however, escaped from them, and they ultimately soundly healed.

The patient remains in every respect perfectly well, and it is now a year since the closure was effected.

Such an operation is, of course, only possible when the artificial anus is of large size; but it is precisely in these cases that other methods are least successful. The advantages which I claim for it are, that it presents to the feces the normal mucous surface of the bowel, that it diminishes the strain upon the stitches, and that it largely increases the depth of raw surface, by the adhesion of which the pressure from within is to be resisted. It seems to me theoretically sound, and in this case at least was practically successful.—*London Lancet*.

GLEANINGS FROM OUR EXCHANGES.

SYPHILITIC DISEASE OF THE PLACENTA.—The *Medical Times and Gazette*, May 10, 1873, gives a summary of Dr. Ernest Fränkel's views on this subject. Dr. Fränkel's article contains the history of over twenty cases of syphilitic placenta. He summarizes his observations in the following conclusions:

1. The placenta may become affected by syphilis, and there are certain characteristic indications of this.
2. The syphilitic placenta occurs only in hereditary or congenital syphilis in the fœtus.
3. The seat of the disease varies according as the mother remains healthy and the syphilitic virus is communicated directly from the father to the ovum by means of the semen, or according as the mother is diseased. In the former case the affected foetal villi of the placenta degenerate through proliferation of cellular granulations, with consecutive obliteration and atrophy of the vessels, complicated frequently by marked proliferation and thickening of the epithelial covering of the villi.
4. In the latter case, when the mother is syphilitic, the three following conditions may occur: *a.* The mother, through the act of impregnation, is simultaneously affected with syphilis with the fœtus; diffused syphilis of the placental villi may then develop itself, though primary infection of the maternal parts—endometritis placentaris—is not excluded. *b.* The mother becomes infected before, or shortly after, conception. The placenta may remain normal, or become diseased under the form of endometritis placentaris gummosa, or, according to Virchow, in a more limited sense, endometritis decidua. *c.* The mother becomes infected only during the latter months of pregnancy (seventh to tenth month). It then generally happens that, in case the father was healthy at the time of impregnation, the fœtus, as well as the placenta, is exempt from the above-described alterations.
5. The infection of the fœtus on passing through the maternal passages is rare, and not yet proved conclusively.

RUPTURE OF THE BLADDER FROM INJURY—RECOVERY OF THE PATIENT.—Dr. J. Mengus (*Abeille Médicale*) records a case of this accident where the usually fatal result did not ensue.

At nine o'clock in the morning, a young man, æt. 34, fell on the edge of a wine-press from a considerable height; he immediately felt an acute pain in the pelvic and right hypochondriac region, but was able to walk and get home to bed. He was seen two hours after the accident, and presented the following symptoms: Pulse very slow and feeble; the right side of the belly swollen, tender, and dull on percussion; he had not passed urine since four o'clock in the morning, and could now pass only a few drops. A catheter was passed, which obtained but a few more drops, and a careful examination was made of the bladder, but no rent or opening could be ascertained. The bladder was then injected with warm

water. The greater part, but not all, flowed back, tinged with blood. He was treated with opium, camphor, and quinine in pill, frequently repeated. On the same day, in the evening, the pain increased; leeches were applied over the belly; he restrained himself from drinking, as far as possible, and by the fourth week the symptoms disappeared. He could retain and urinate as before.

CHRONIC TETANUS TREATED BY EXCISION OF CICATRIX.—Mr. Annandale gives a short account of the following case: A boy, aged 16, wounded his foot. On the ninth day afterwards, trismus came on; and he came into hospital on the sixteenth day after the wound, or the seventh of the trismus. There was no laryngeal symptom nor opisthotonos. The patient swallowed well; his bowels were freely opened by croton oil, and for three days he was kept under the influence of small doses of morphia. For two days more he had ninety grains of chloral daily. On the twelfth day of the tetanus, slight contraction of the muscles of the limb began. On the next day, the cicatrix and a piece of nerve which appeared congested were cut out, and all medical treatment stopped. There was no improvement for two days; but on the third day, or sixteenth of the disease, he began to improve, and went out soon, quite well.—*British Medical Journal*, July 26, 1873.

GALVANISM IN POST-PARTUM HEMORRHAGE.—The following case may be considered of interest as furnishing an instance of the efficiency of a mode of treatment for the great opprobrium of obstetric art, which, if not new and little known, is at any rate far from being so widely employed as its numerous advantages would appear to indicate it should be.

The patient was in an extremely feeble state of health, and subject to epileptiform seizures. Convulsions came on during the first stage of labor, and could only be checked by keeping her under the influence of chloroform for some time. Failure of uterine action occurred before the os uteri was fully dilated; but, as it was sufficiently dilatable, forceps (Beattie's) were introduced, and delivery was accomplished. Still, the uterus did not contract, and, after the placenta was removed, hemorrhage could only be restrained by keeping the hand within the uterus. Grasping and kneading the uterus, cold affusion externally, and injections of cold water per vaginam, produced no effect. A dilute solution of perchloride of iron was freely injected into the uterus, but proved ineffectual. The employment of galvanism was then suggested as a *dernier ressort*, and one of Stöhrer's portable coil machines was procured. An interrupted current of considerable intensity was directed through the uterus, one pole of the battery being applied to the abdominal walls immediately over the fundus, by means of a curved plate of copper, and the other placed in the cervix. Almost immediately firm contraction took place; and when the current was discontinued after a short time, the uterus remained securely contracted, and no further hemorrhage took place. The patient made a good recovery.—*British Medical Journal*, August 9.

OXIDE OF ZINC IN INFANTILE DIARRHŒA.—In the *British Medical Journal* of July 12, Mr. Edward Mackey, M.B., recommends oxide of zinc in infantile diarrhœa, especially in those forms complicating nerve-troubles or hooping-cough. He points out that it has "tonic and anti-spasmodic as well as astringent qualities, a combination in a non-irritant substance exactly suited to many cases of the malady." It does not irritate, as chalk sometimes does, or gripe, as acids do occasionally, and is a better nerve-tonic than bismuth. Mr. Mackey says that it has given him excellent results in all varieties of infantile diarrhœa, in conjunction with

suitable diet. Dose, one grain for any age under two years, with a little syrup, mucilage, and dill-water three or four times daily, not on an empty stomach. A larger dose may nauseate. He says that oxide of zinc will give us in many cases the maximum of good with least liability to harm,—an advantage to be desired, especially in out-patient and distant cases. Dr. Waring-Curran has referred to this use of oxide of zinc, in the *Lancet*, October, 1868, and Dr. Brakenridge, in the *Medical Times and Gazette*, February, 1873, points out its tonic and anti-spasmodic as well as astringent properties.

CHOLERA INFANTUM.—Dr. Edward R. Palmer says (*The American Practitioner* for August), "Previous numbers of *The Practitioner* have contained articles highly commendatory of the calomel and of the bismuth and pepsin treatment of cholera infantum. I have tried both, and am fully convinced of their inferiority in this disease to the creosote and lead treatment. In the treatment of a large number of cases during the last three summers, but one has proved fatal, and that one was in a state of complete collapse before it was seen. The formula used is as follows:

R Mucilaginis acaciæ, ℥ss;
Liquoris calcis, ℥iss;
Creosoti, gr. iij;
Plumbi acetatis, gr. xvj.

S. A teaspoonful every one to three hours.

"One thing proved is the innocuousness of the acetate, no symptom of lead-poisoning having in any instance resulted. A former professor of chemistry in this city was in the habit of asserting that sugar of lead might be given in scruple or half-drachm doses without any toxic effect, which seems, though contrary to general opinion, exceedingly plausible.

"Egg-water—the white of one egg to each gobletful—is given in conjunction with the above treatment. By adding a good-sized pinch of bicarbonate of soda to each glassful, the retention of this drink by the stomach is almost assured.

"Finally, in the above, reference is had to those cases only which are strictly cholera infantum, enterocolitis being excluded as a disease which during its protracted course usually needs a variety of treatment. Here too, however, creosote and lead will give great satisfaction."

CONSUMPTION OF SPIRITS.—In the first quarter of the year 1873, duty was paid on 6,877,953 gallons of home-made spirits for consumption as beverage in the United Kingdom, being an increase of 684,051 gallons over the quantity in the corresponding period of the preceding year, or upwards of 11 per cent. In England the quantity was 3,790,712 gallons, an increase of 386,838 gallons; in Scotland, 1,466,124 gallons, an increase of 157,228 gallons; in Ireland, 1,621,117 gallons, an increase of 139,985 gallons. In the same period 1,325,360 proof gallons of imported rum were entered for consumption in the United Kingdom, an increase of 275,236 gallons; 951,163 proof gallons of imported brandy, an increase of 71,814 gallons; and 246,810 proof gallons of other imported spirits, not sweetened or mixed, being an increase of 70,029 gallons.

SUBCUTANEOUS CARBOLIC INJECTIONS IN INTERMITTENT FEVER.—M. Déclat, at a meeting of the Academy of Medicine (*Gazette Médicale*, December 28), stated that in cases of intermittent fever he makes, on the first day of treatment, four subcutaneous injections of 100 drops of a one per cent. solution of carbolic acid, the next day three, the third day two. The first operation, says the author, always diminishes the fever, and sometimes cures it; the second is sometimes a work of precaution; and the third is so almost always.

BELLADONNA IN INTESTINAL INVAGINATION AND HERNIA.—M. Gallicie (*La France Médicale*), in a paper on belladonna, says it is the special medicament for intestinal invagination, strangulated or not, as also for strangulated hernia. It acts on both the spasmodic and inflammatory elements. In both cases, however applied, its first effect is to alleviate the intensity of pain, and to diminish and arrest the vomiting.

MISCELLANY.

TRANSFUSION OF BLOOD (*Pepys's Diary*).—Under date of November 21, 1667, we find: "With Creed to a Tavern, where Dean Wilkins and others: and good discourse; among the rest, of a man that is a little frantic (that hath been a kind of minister, Dr. Wilkins saying that he hath read for him in his church), that is poor and a debauched man, that the college have hired for twenty shillings to have some of the blood of a sheep let into his body; and it is to be done on Saturday next. They purpose to let in about twelve ounces; which, they compute, is what will be let in in a minute's time by a watch." November 30, we have the sequel: "I was pleased to see the person who had his blood taken out. He speaks well, and did this day give the (Royal) Society a relation thereof in Latin, saying that he finds himself much better since, and as a new man; but he is cracked a little in his head, though he speaks very reasonably and very well. He had but twenty shillings for his suffering it, and is to have the same again tried upon him; the first sound man that ever had it tried on him in England, and but one that we hear of in France." November 14, 1661, I find: "Dr. Croone told me that at the meeting at Gresham College to-night there was a pretty experiment of the blood of one dog let out (till he died) into the body of another on one side, while all his own run out on the other side. The first died upon the place, and the other very well, and likely to do well. This did give occasion to many pretty wishes, as of the blood of a Quaker to be let into an archbishop [e.g., Laud?], and such like; but, as Dr. Croone says, may, if it takes, be of mighty use to man's health, for the amending of bad blood by borrowing from a better body."

SPECIALITIES.—Dr. Robert Barnes says, "I have recently been honored by a visit from a lady of typical modern intelligence, who consulted me about a fibroid tumor of the uterus; and, lest I should stray beyond my business, she was careful to tell me that Dr. Brown-Séquard had charge of her nervous system; that Dr. Williams attended to her lungs; that her abdominal organs were intrusted to Sir William Gull; that Mr. Spencer Wells looked after her rectum; and that Dr. Walshe had her heart. If some adventurous doctor should determine to start a new speciality, and open an institution for the treatment of diseases of the umbilicus,—the only region which, as my colleague, Mr. Simon, says is unappropriated,—I think I can promise him more than one patient."—*London Lancet*.

CLAY-EATERS.—The Agmara Indians, inhabiting the shores of Lake Titicaca and the lofty plateau of the Andes, find the struggle for existence hard, at an altitude of more than 11,000 feet above the sea-level. Their principal articles of food are *quinoa*, a coarse grain resembling rice, and potatoes, of which tuber their country is the original home. The difficulty of boiling food at so great an altitude necessitates the previous maceration of all articles intended to be so cooked. The potato is, therefore, prepared for storing and use by exposing it to the frost; then it is placed in water, and stamped into a paste; all the soluble matter is washed out, and the starchy and farinaceous substance alone remains. This is called *chuno*, and it is made into a nutritious though insipid soup. The Agmaras use clay as an article of food, mixing it with *quinoa*. The clay they use is of a whitish color, and rather gritty. Careful analysis shows that it contains no organic matter; and therefore it must be used merely for the purpose of producing a satisfactory though delusive distention of the stomach.—*Popular Science Monthly*.

THE following curious statement comes to us on reliable authority: A vicious horse (gelding) that had the singular habit of striking violently with his fore feet, especially when being shod, was for several years worked with a mare that during the time bore a colt. This colt, when quite young, developed the habit peculiar to its mother's mate, becoming violent when any attempt was made to handle its fore-limbs. The habit increased with the colt's age, and, on being shod the first time, its manner of striking was observed to be precisely like that of the horse. The mother of the colt was unusually kind and gentle.—*Popular Science Monthly*.

PORTABLE DRY INK.—At a recent meeting of the Frankfort Polytechnic Association, Professor Boettger exhibited a novel kind of ink, which is admirably adapted to take on journeys and exploring expeditions. White blotting-paper is saturated with aniline-black, and several sheets are pasted to form a thin pad. When wanted for use, a small piece is torn off and covered with a little water. The black liquid which dissolves out is a good writing-ink. A square inch of the paper will give enough ink to last for considerable writing, and a few pads would be all that an exploring party need carry with them. As water is always available, the ink is readily made.—*American Journal of Pharmacy*.

THE RAISING OF CHILDREN DOUBLED.—Dr. Farr reports that the proportion of children raised has doubled within a hundred years. In London, the proportion of deaths under five years was—1730 to 1749, 74.5 per cent.; 1770 to 1789, 51.5 per cent.; 1851 to 1870, 29.8 per cent.—*The Medical Examiner*.

IMPORTANT, IF TRUE!—According to the *Indian Gazette*, the well-earned distinction of Rai Bahadoor has been bestowed upon Baboo Kannaye Lall Dey.

CHLOROFORM.

AIR.—"Spirito gentil nei sogni miei."—DONIZETTI: *La Favorita*.

Spirit genteel,
Sweet chloroform,
Soft o'er me steal,
Quell each alarm;
When thy soft murmur
Rings in my ears
Quickly 'twill conjure
Away all my fears.

When on my hotly-burning shoulder
Caruncle blazes like a fire,
When through my largest three-fanged molar
The toothache rages dire,

Ah me! Ah me!
Spirit genteel,
Sweet balmy gale,
What can I feel
When thee I inhale?

For Nasmyth's big forceps with crashing claw,
For Syme's silver pocket-case, don't care a straw.
Nasmyth may wrench me with forceps or with key,
Syme may make his crucial through me—all's one to me.

From "*Nugæ Canoræ Medicæ: Lays by the Poet-Laureate of the New Town Dispensary.*"

CINCHONA cultivation in Darjeeling is progressing favorably. Last year the Pomong garden, which is described as a commercial enterprise, yielded 36,000 lbs. of dry bark, and this season it will produce 50,000 lbs. A moderate estimate gives the produce of dry bark in the next three years at 200,000 lbs., calculated to yield 6000 lbs. of quinine and 6000 lbs. of other valuable alkaloids. "Fever-stricken Bengal," says *The Times* correspondent, "with its swamps and malaria, will hail the boon."

SCIENCE AS KNOWN TO THE ANCIENTS.—In Egypt mummies have been found with teeth filled with gold, and in Quito a skeleton has been discovered with false teeth secured to the cheek-bone by gold wire. In the museum at Naples, among some of the surgical instruments discovered at Pompeii there is a fac-simile of Sims's speculum. In the ruins of Nineveh, Layard found several magnifying glasses.—*New York Medical Record*.

THERE is in Cayenne a fly, called the *Lucilia Homini-vorax* (man-eater), which commits great havoc among the convicts sent out to that colony by the French government. M. Charles Coquerel says that this fly lays its eggs in the mouth or nostrils of a sleeping convict, especially a drunken one, and that the offspring in their larval state usually bring about the death of their victim.—*Popular Science Monthly*.

MOULD ON BREAD.—Messrs. Richard and Legros express the belief in *Comptes-Rendus* that this frequent parasitic vegetation is due rather to the poor quality of the flour, or to bad management, than to the presence of germs in the air; and that it may be prevented by adding an excess of salt to the bread.—*American Naturalist*.

ONE profession (says *Punch*) is safe from the invasion of woman. She may enter the army, but it is impossible that she can man the navy.